

BEAVERTON URBAN RENEWAL FEASIBILITY STUDY

EXHIBIT 1. INFRASTRUCTURE

WH PACIFIC, INC.

02/09/2010

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The improvements required based on the urban renewal zones are shown on the accompanying maps and are detailed below. We have based this information with the latest information available including The Beaverton Transportation System Plan, January 2009 Water System Master Plan prepared by Murray Smith & Associates and the City of Beaverton Capital Improvement Plan for Fiscal Year 2009/2010 through 2010/2011,

1. Transportation

The Beaverton Transportation System Plan (TSP) breaks the city transportation system down into fundamental categories and discusses these categories with respect to vehicles, bicycles and pedestrians. In reviewing this we have broken out the identified improvements that would apply to zone on the urban renewal below, also identified in Figure 4. The service providers for streets within the area are the Oregon Department of Transportation, Washington County and the City of Beaverton.

ID	Location	Zone	Improvement	Cost
1	Walker Rd (Cedar Hills Blvd to Lynnfield Ln)	8	Add bike lane	\$200,000
2	Watson Ave (Hall Blvd to Cedar Hills Blvd)	1	Construct bike lanes	\$4,820,000
3	Collector Roads (Hocken Ave to 110 th Ave)	1,2,3, 7	Add sidewalk	\$1,365,000
4	Millikan Way (East Ave to Lombard Ave)	1	Add sidewalk	\$95,000
5	Watson Ave (Millikan Way to Canyon Rd)	1	Add sidewalk (east side)	\$25,000
6	114 th Ave (Center St to MAX rail)	3	Add bike lane	\$70,000
7	Cedar Hills Blvd (Hall Blvd to Farmington Rd)	1,2,7, 8	Add bike lane	\$370,000
8	Hall Blvd (Watson Ave (north couplet) to Farmington Rd)	1,2	Add bike lane	\$220,000
9	Millikan Way (Rose biggi Ave to Lombard Ave)	1	Add bike lane	\$280,000
10	Watson Ave (Hall Blvd (north couplet) to Farmington Rd)	1,2	Add bike lane	\$205,000
11	Hocken Rd (Millikan Way to Canyon Rd)	7	Add bike lane	\$170,000
12	Dawson Rd (Hocken Ave to Cedar Hills Blvd)	8	Add bike lane	\$135,000
13	Broadway St (Canyon Rd to Lombard Ave)	2,3	Add bike lane	\$603,000
14	Millikan Way (Watson Ave to 114 th Ave)	1,3	Extend 2 lane road, add turn lanes at intersections and bikeway and sidewalks	\$14,785,000
15	New street connection (Broadway St to 115 th Ave)	3	Construct new 2 lane street with bikeway and sidewalks	\$4,820,000
16	Center St and 113 th Ave (Hall Blvd to Cabot St)	1,3	Add sidewalks and bike lanes, add turn lanes where needed	\$5,785,000
17	Millikan Way (141 st Ave to Hocken Ave)	7	Add turn lanes as needed, bike lanes and sidewalks, signalize as warranted	\$2,785,000
18	TV Hwy (117 th Ave to Hillsboro)	1,2,7	Implement access management strategies	\$28,900,000
19	TV Hwy (209 th Ave to OR 217)	1,2,3, 7	Interconnect traffic signals	\$2,190,000
20	Canyon Rd and Cedar Hills Blvd	1,2,7	Add NB left turn lane, add SB left turn lane	\$3,500,000
21	Hall Blvd/Watson Ave (Cedar Hills Blvd to Allen Blvd)	1,2,5	Add pedestrian improvements at intersections and amenities (lighting, plazas)	\$2,570,000
22	Farmington Rd (OR 217 to Hocken Ave)	2,3,6,	Construct bike lanes	\$13,495,000

ID	Location	Zone	Improvement	Cost
		7		
23	Griffith Dr (5 th St to Farmington Rd)	3	Add bike lane	\$265,000
24	Lombard Ave (5 th St to Farmington Rd)	2	Add bike lane	\$195,000
25	Erickson Ave (6 th St to Farmington Rd)	6	Add bike lane	\$205,000
26	Farmington Rd (Murray Blvd to Hocken Ave)	6,7	Add turn lanes and intersection improvements, signalize where warranted, add bike lanes and sidewalks in gaps.	\$9,320,000
27	114 th Ave/115 th Ave (LRT to Beaverton-Hillsdale Hwy/Griffith Dr)	3	Construct 2 lane street with bike and pedestrian improvements	\$10,710,000
28	Allen Blvd, Cedar Hills Blvd, Hall Blvd and Farmington Rd	1-8	Adaptive traffic signal systems, new signals and signal upgrades	\$10,710,000
29	Murray Blvd and Farmington Blvd	6,7	Double left turn lanes on all approaches, SB, EB and WB right turn lanes	\$3,780,000
30	6 th Ave (Murray Blvd to Erickson Ave)	6	Construct bike lanes	\$3,855,000
31	Cedar Hills Blvd (Walker Rd to Hall Blvd)	8	Add bike lane	\$430,000
32	141 st Ave/142 nd Ave/144 th Ave (141 st Ave to 144 th Ave)	6,7	Connect streets, add bikeways, sidewalks, turn lanes and signalize as warranted	\$6,855,000
33	Murray Blvd (TV Hwy to Allen Blvd)	6,7	Interconnect traffic signals	\$75,000
34	Canyon Rd (142 nd Ave to 91 st Ave)	1,2,3,7	Add bike lane	\$1,725,000
35	Beaverton-Hillsdale Hwy (OR 217 to 91 st Ave)	4	Add bike lanes	\$685,000
36	Allen Blvd (OR 217 to Murray Blvd)	5	Add bike lanes	\$390,000
37	117 th Ave (LRT to Center St)	1,3	Construct sidewalks	\$430,000
38	TV Hwy/Canyon Rd (OR 217 to Murray Blvd)	1,2,3,7	Add sidewalk	\$10,535,000
39	Dawson Rd (Cedar Hills Blvd to Hocken Rd)	8	Add sidewalk (north side)	
40	113 th Ave (Cabot St. to Center St)	3	Add sidewalk (east side)	
41	Cabot St (113 th Ave to East of OR 217)	3	Add sidewalk (south side)	
42	153 rd (Millikan Way to TV Hwy)	7	Add bike lane	
43	Electric St to Whitney Way (Electric St to 144 th Ave)	7	Connect existing streets and improve to standard with bikeway and sidewalks	\$7,715,000
44	TV Hwy and Hocken Ave	7	Add EB right turn lane, restripe SB Approach, widen Hocken to 2 SB through lanes	\$4,685,000
45	Canyon Rd and Fred Meyer	3	Add SB left turn lane, signal modification to NB/SB split phasing	\$190,000
46	Allen Blvd (OR 217 to approx. 200 ft west of Western Ave)	4	Add bike lane	\$145,000
47	5 th St (Alger Ave to OR 217)	2,3,4,5	Add sidewalk (south side)	
48	Cedar Hills Blvd (Millikan Way to MAX rail)	1	Add sidewalk (east side)	
49	Allen Blvd (OR 217 to Western Ave)	4	Widen street to 4/5 lanes adding turn lanes and signals where needed, construct bike lanes and sidewalks	\$6,750,000
50	Murray Blvd (Farmington Rd to approx. 200 ft s/o TV Hwy)	7	Add bike lanes (west side)	\$65,000
51	Millikan Way (Murray Blvd to Hocken Ave)	7	Add sidewalk	
52	142 nd Ave (TV Hwy to Beaverton-Hillsdale Hwy)	7	Add sidewalk	
53	141 st Ave (TV Hwy to Millikan Way)	7	Add bike lane	
54	141 st Ave (TV Hwy to Beaverton-Hillsdale Hwy)	7	Add bike lane	
55	141 st Ave (Beaverton-Hillsdale Hwy to Allen Blvd)	6	Add bike lane	

ID	Location	Zone	Improvement	Cost
56	Hocken Ave (Dawson Way to Hall Blvd)	8	Pedestrian and bicycle gap	
57	Rose Biggi Ave (Crescent St to Hall Blvd)	1	Extend 2-lane Rose Biggi Ave. to Hall Blvd. (via Westgate Drive) to fill a gap, boulevard design, add sidewalks and bikeway	\$3,750,000
58	Dawson Way/Westgate Dr (Rose Biggi Ave to Hocken Ave)	1	Extend 2 lane street from Hocken via Dawson and Westgate at Rose Biggi to fill a gap; realign Dawson/Westgate at Cedar Hills, add turn lanes at intersections, sidewalks and bikeway	\$9,535,000
59	Crescent St multimodal ext. (Rose Biggi Ave to Cedar Hills Blvd)	1	Extend 2 lane Crescent from Cedar Hills to Rose Biggi Ave. to fill a gap; add sidewalks, bikeway.	\$3,750,000
60	Various	1-8	Addition of 50 traffic signals per plan	\$18,890,000
61	Millikan Way (Murray Blvd to TV Hwy)	1,7	Add bike lane	\$685,000
62	Western Ave (Beaverton-Hillsdale Hwy to Allen Blvd)	4	Construct bike lanes	\$5,355,000
63	Walker Rd (Murray Blvd to OR 217)	8	Widen to 5 lanes	\$39,735,000
64	Cedar Hills Blvd and Walker Rd	8	Double left turn lanes and EB right turn lane	\$3,780
65	Cedar Hills Blvd and Jenkins Rd	8	Jenkins to 5 lanes	\$165,000
66	Hall Blvd (Center St to Jenkins Rd)	1,8	Extend new 5-lane road north of Center to Jenkins at Cedar Hills with sidewalks and bike lanes	\$16,620,000
67	Cedar Hills Blvd and Jenkins Rd	8	SB and EB double left turn lanes, SB right turn lane, Widen Jenkins to 5 lanes, WB right turn channel, signal modifications to EB and WB protected phasing	\$2,645,000
68	Crescent St (Rose Biggi Ave to Hall Blvd)	1	Add sidewalk (north side)	
69	120 th Ave (Center St to Canyon Rd)	1	Construct new multimodal street with bikeways and sidewalks, turn lanes and signals as needed	\$9,535,000
70	Rose Biggi Ave (TV Hwy to Broadway St)	2	Construct 2 lane boulevard extension with bikeways and sidewalks	\$3,215,000
71	Tualaway Ave (Electric St to Millikan Way)	7	Extend existing street to Millikan with bikeways and sidewalks	\$4,180,000
72	Canyon Rd and Lombard Ave	1,2	Add EB right turn lane	\$660,000
73	Hocken Ave (TV Hwy to Farmington Rd)	7	Widen Hocken to accommodate 2 additional lanes from TV to Farmington to allow turn lanes, widen TV from 141 st to Hocken to allow 3 through lanes and additional turn lanes	\$9,220,000
74	TV Hwy and Murray Blvd	7	Double left turn lanes on all approaches, add NB/SB through lane DCP, install median at TV/Railroad tracks/Farmington to restrict driveways to right in, right out	\$2,265,000
75	Canyon Rd and Cedar Hills Blvd	1,2,7	Widen Canyon to 7 lanes on west leg	\$3,500,000
76	Canyon Rd and Cedar Hills Blvd	1,2,7	Add SB right turn lane	\$250,000
77	Canyon Rd and Cedar Hills Blvd	1,2,7	Add EB/WB left turn lane	\$500,000
78	Western Ave (5 th St to 800 ft s/o 5 th St)	4	Construct sidewalks	\$645,000
79	141 st Ave (Farmington Rd to Allen Blvd)	6	Construct sidewalks	\$320,000
80	Farmington Rd (Lombard Ave to Cedar Hills Blvd)	2,6	Add sidewalk (north side in gaps)	

ID	Location	Zone	Improvement	Cost
81	Allen Blvd (OR 217 to Murray Blvd)	5	Widen Street adding turn lanes and signals where needed, construct bike lanes and sidewalks	\$44,565,000
82	Hall Blvd (Farmington Rd to Cedar hills Blvd)	1,2	Construct bike lanes and turn lanes	\$5,570,000
83	Farmington Rd and Cedar Hills Blvd	2,6,7	Add 2 nd EB left turn lane, right of way	\$1,645,000
84	Farmington Rd and Cedar Hills Blvd	2,6,7	construct SB right turn lane and restripe SB lanes as side-by-side left turn lanes	\$1,510,000
85	Farmington Rd and Lombard Ave	2,3	Add NB right turn lane	\$755,000
86	Beaverton-Hillsdale Hwy and Western Ave	4	Add EB right turn lane, add WB double left turn lanes, add NB through lanes	\$2,265,000
87	Farmington Rd and Hocken Ave	6,7	Add WB right turn lane	\$250,000
88	Farmington Rd and Hocken Ave	6,7	SB double left turn lanes (Hocken carries 2 SB lanes from TV Hwy)	\$4,285,000
89	Cedar Hills Blvd (Farmington Rd to Walker Rd)	1,2,7,8	Add turn lanes, bike lanes and sidewalks	
90	Murray Blvd (TV Hwy to Farmington Rd)	6,7	Construct 4 lane overpass (Murray over TV Highway and Farmington), including sidewalks, bike lanes and interchange connections	\$37,550,000
91	Hall Blvd and Allen Blvd	5	Add EB and WB right turn lanes, NB and SB double left turn lanes	\$2,570,000
92	Hall Blvd (12 th St to s/o Allen Blvd)	5	Construct bike lanes and turn lanes	\$5,570,000
93	TV Hwy (Cedar Hills Blvd to 10 th St)	1,2,3	Add capacity based on recommendation from refinement planning	\$48,470,000
94	Cedar Hills Blvd (Walker Rd to Farmington Rd)	1,2,7,8	Use stimulus funding to update signal timing at 6 signalized intersections	\$56,000
95	Farmington Rd (Hocken Ave to Griffith Dr)	2,3,6,7	Use stimulus funding to upgrade signal control software to SCATS at 7 intersections and upgrade model 170 signal controllers to 2070L, connect signals to regional centralized signal control system	\$804,000
96	Beaverton Creek trail (Hall Blvd to Lombard Ave)	1	Acquire easement, construct trail and enhance native vegetation	\$500,000
97	Allen Blvd (Wilson Ave to Arctic Dr)	4,5	Use stimulus funding to replace obsolete controllers with 2070 controllers, upgrade existing communication equipment, collect traffic volumes, implement new timing at 6 signalized intersections and replace 4 controllers	\$121,710

2. Water

The City of Beaverton is the water provider for the zones in the study and we have based our review on the January 2009 Water System Master Plan prepared by Murray Smith & Associates and The City of Beaverton Capital Improvement Plan for Fiscal Year 2009/2010 through 2010/2011. Based on this study, the current system within our study is in pretty good shape: see

Figure 5. The service providers for water within the area are the City of Beaverton, Tualatin Valley Water District and West Slope Water District.

The following water lines are undersized or old and are targeted to be replaced by the study:

ID	Project Number & Location	Zone	Water Improvement	Project Cost
1	4010-Franklin Ave (2 nd St to 9 th St) and 8 th St (Tucker St to Franklin Ave)	2,5	Construct 2,400 ft of 8-in waterline and associated valves	\$800,000
2	4067B-Hall Blvd (12 th St to Allen Blvd)	5	Replace 830 ft of 12-in cast iron pipe with 16-in ductile iron and associated water services and hydrants	\$270,000
3	6043-Menlo Dr (Allen Blvd to Farmington Rd), Hazel St and Berthold St (Erickson Ave to Menlo Dr)	5,6	Replace 4,159 ft waterline with 12-in pipe and 3,915 ft with 8-in pipe	\$4,629,000
4	6069-10 th Ave and 12 th Ave (Main Ave to Watson Ave)	5	Replace approximately 1,200 ft 2-in waterline with 8-in	\$800,000
5	8075-7 th St (Lombard Ave to Alger Ave)	5	Replace existing cast iron 6-in waterline with 8-in ductile iron	\$650,000

3. Sewer

The City of Beaverton is the sewer provider for the zones in the study and we have based our review on the City of Beaverton Capital Improvement Plan for Fiscal Year 2009/2010 through 2010/2011. Based on this study, the current system within our study is in pretty good shape: see Figure 6. Service providers for sewer systems within the area are the City of Beaverton and Clean Water Services.

The following sewer lines are undersized or old and are targeted to be replaced by the study:

ID	Project Number & Location	Zone	Sewer Improvement	Project Cost
1	4010- Franklin Ave (2 nd St to 9 th St) and 8 th St (Tucker St to Franklin Ave)	2,5	Rehabilitate approximately 2,300 ft 8-in pip and 30 laterals	\$800,000
2	6001-3 rd St, Fairmount Dr and 6 th St	6	Upsize approximately 2,000 ft of trunk line and 1,000 ft of 8-in line	\$800,000
3	6043-Melno Dr, Hazel St, Berthold St, Pearl St and 6 th St	5,6	Rehabilitate 6,748 ft 8 and 10-in pipe and 14,000 ft 4 and 6-in service laterals, upsize 988 ft of trunk line	\$4,629,000
4	6067-SSMH A-015 to SSMH A-061 to SSMH T-050	2,3,4	Replace and rehabilitate 2,600 ft 12 and 18-in main line	\$600,000
5	6069-10 th Ave and 12 th Ave (Main Ave to Watson Ave)	5	Replace or rehabilitate 96 sewer services totaling 5,760 ft and 4,000 ft of existing 8-in concrete main lines	\$800,000
6	6072-Main Ave (7 th St to Farmington Rd)	2,5	Replace and rehabilitate 100 sewer services totaling 6,000 ft and 3,700 ft of 8-in concrete main lines	\$850,000

4. Storm Drain

The City of Beaverton's storm drainage system is challenged by the lack of slope through much of the study area. The storm drain system consists of both open channel and piped flows for the zones in the study. Based on our review of the City of Beaverton Capital Improvement Plan for Fiscal Year 2009/2010 through 2010/2011, the required improvements could be quite significant: see Figure 7.

The following storm drainage lines are undersized or old and are targeted to be replaced by the study:

ID	Project Number & Location	Zone	Storm Drain Improvement	Project Cost
1	6043-Menlo Dr (Allen Blvd to Farmington Rd), Hazel St and Berthold St (Erickson Ave to Menlo Dr)	5,6	Replace 310 ft of 10 to 48-in pipe and structures within area	\$4,629,000
2	6043B-141 st Ave (Allen Blvd to 6 th St) and 6 th St (141 st Ave to Spencer Ave) and Spencer Ave and Larch St to Menlo Ave	6	Replace and rehabilitate 5,670 ft pipe 30 to 48-in	\$1,061,000
3	8022C-Hocken Ave over Beaverton Creek	8	Replace 2 84-in culverts with bridge	\$1,800,000
4	8043-Erickson Creek at Carousel Ct and 141 st Ave	7	Install surface water runoff treatment structure	\$100,000
5	8074-Erickson Creek at SE corner of Farmington Rd and Menlo Dr	6	Construct a greenspaces area and water quality facility	\$675,000
7	8081-Erickson Creek (Farmington Rd to RR tracks)	7	Study hydraulics of approximately 650 ft of creek	\$25,000

5. Goal 5 Inventory

The Goal 5 inventory that represents higher value wetland areas has been roughly identified and will have a considerable impact on developing within these areas: see Figure 7.